

What is Claimed:

1. An apparatus for forming an absorbent structure comprising:
a moving and porous forming surface;
a fiber conveying device for conveying fibers onto the forming
5 surface in a gas stream; and
at least one masking member located on the forming surface, the
masking member blocking gas flow through the forming surface, the masking
member creating at least two openings in an absorbent fibrous web formed on the
forming surface, an absorbent fibrous web formed on the forming surface having a
10 top portion, a middle portion, a bottom portion, and two opposing lateral flaps, the
masking member being positioned so as to form the openings between the middle
portion and the lateral flaps and having a shape such that, when the lateral flaps
are folded onto the absorbent web, the middle portion is narrower than the front
portion due to the openings.
- 15 2. An apparatus as defined in claim 1, wherein the at least one masking
member is shaped so as to form at least one further opening in the rear portion of
an absorbent fibrous web formed on the forming surface, the rear opening being
located such that, upon folding of the lateral flaps, the middle portion has a basis
weight that is at least about twice the basis weight of areas of the rear portion.
- 20 3. An apparatus as defined in claim 1, wherein the forming surface
comprises a porous fabric.
4. An apparatus as defined in claim 3, wherein the forming surface is
located on a forming drum.
5. An apparatus as defined in claim 4, wherein a pattern of masking
25 members is repeated over the surface of the forming drum for creating a strip of
web material defining multiple absorbent pads connected together.
6. An apparatus as defined in claim 2, wherein the apparatus includes a
pair of masking members, each masking member having a shape so as to form
the middle opening interconnected with the rear opening and each masking
30 member being positioned so as to form the middle portion between two middle
openings and a thin strip of material between two rear openings when an
absorbent fibrous web is formed on the forming surface.

7. An apparatus as defined in claim 6, wherein each masking member is further configured to form a front opening located on the front portion of an absorbent fibrous web formed on the forming surface.

8. An apparatus as defined in claim 1, further comprising at least one
5 movable tab located on the masking member, the movable tab being configured to decrease the size of the middle portion of an absorbent fibrous web formed on the forming surface when the tab is placed in an extended position.

9. An apparatus as defined in claim 1, further comprising at least one
10 movable tab located on the masking member, the movable tab being configured to form at least one front opening located on the front portion of an absorbent fibrous web formed on the forming surface when the tab is placed in an extended position.

10. An apparatus as defined in claim 8, wherein the movable tab is connected to the masking member by a hinge.

11. An apparatus as defined in claim 8, wherein the tab is movable
15 between a retracted position and the extended position.

12. An apparatus as defined in claim 8, wherein the movable tab is removable from the masking member.

13. An apparatus as defined in claim 1, wherein the masking member is made from a material comprising a metal.

20 14. An apparatus as defined in claim 6, wherein each masking member is in association with a movable middle tab and a movable rear tab, wherein by placing the middle tabs in an extended position, the size of the middle portion of an absorbent fibrous web formed on the forming surface is decreased, and wherein by placing the movable rear tabs in an extended position, front openings are
25 formed in the front portion of an absorbent fibrous web formed on the forming surface.

15. A process for forming absorbent structures comprising:
providing a porous forming surface, at least one masking member being located on the forming surface, the masking member blocking gas flow
30 through the forming surface;
conveying fibers in a gas stream onto the porous forming surface to form an absorbent fibrous web, the fibrous absorbent web being created with at least two openings corresponding to where the at least one masking member is

located on the forming surface, the absorbent fibrous web having a top portion, a middle portion, a bottom portion, and two opposing lateral flaps, the openings being formed between the middle portion and the lateral flaps and having a shape such that, when the lateral flaps are folded onto the absorbent web, the middle
5 portion is narrower than the front portion due to the openings.

16. A process as defined in claim 15, wherein a continuous strip of the absorbent fibrous web is formed containing a succession of individual absorbent structures.

17. A process as defined in claim 15, wherein the absorbent fibrous web,
10 except where the openings are located, has a substantially uniform basis weight.

18. A process as defined in claim 15, wherein the absorbent fibrous web is formed without scarfing the web.

19. A process as defined in claim 17, wherein the absorbent fibrous web has a basis weight of from about 100 gsm to about 2000 gsm.

20. A process as defined in claim 15, wherein the fibers comprise
15 cellulosic fibers and the absorbent fibrous web further comprises superabsorbent particles.

21. A process as defined in claim 16, wherein the forming surface is located on a rotating forming drum, the forming surface including a repeating
20 pattern of said masking members.

22. A process as defined in claim 16, further comprising the step of folding lateral flaps of each absorbent structure and cutting the strip of fibrous web in a cross machine direction to form a plurality of individual absorbent structures.

23. A process as defined in claim 22, further comprising the step of
25 incorporating the individual absorbent structures into an absorbent product.

24. A process as defined in claim 23, wherein the absorbent product comprises a diaper, a pant-like garment, a training pant, an adult incontinence product, or a female hygiene product.

25. A process as defined in claim 15, wherein the masking member is
30 shaped so as to form at least one further opening in the rear portion of the absorbent fibrous web formed on the forming surface, the rear opening being located such that, upon folding of the lateral flaps, the middle portion has a basis weight that is at least about twice the basis weight of areas of the rear portion.

26. A process as defined in claim 25, wherein the forming surface includes a pair of masking members, each masking member having a shape so as to form the middle opening interconnected with a rear opening and each masking member being positioned so as to form the middle portion between two middle
5 openings and a thin strip of material between two rear openings when the absorbent fibrous web is formed on the forming surface.

27. A process as defined in claim 26, wherein each masking member is further configured to form a front opening located on the front portion of an absorbent fibrous web formed on the forming surface.

10 28. A process as defined in claim 15, wherein the masking member includes at least one movable tab, the movable tab being configured to decrease the size of the middle portion of the fibrous absorbent web formed on the forming surface when placed in an extended position.

15 29. A process as defined in claim 15, wherein the masking member includes at least one movable tab, the movable tab being configured to form at least one front opening located on the front portion of the absorbent fibrous web formed on the forming surface when the tab is placed in an extended position.

20 30. A process as defined in claim 26, wherein each masking member is in association with a movable middle tab and a movable rear tab, wherein by placing the middle tabs in an extended position the size of the middle portion of the absorbent fibrous web formed on the forming surface is decreased and wherein by placing the movable rear tabs in an extended position, front openings are formed into the absorbent fibrous web formed on the forming surface.

25 31. A process as defined in claim 30, further comprising the step of placing the middle tabs in an extended position and the rear tabs in a retracted position when forming a male specific absorbent web and placing the middle tabs in a retracted position and the rear tabs in an extended position when forming a female specific absorbent web.

30 32. A process as defined in claim 15, wherein the absorbent fibrous web comprises synthetic binder fibers.

33. A process as defined in claim 15, wherein the absorbent fibrous web comprises an adhesive.

34. A process as defined in claim 15, wherein, after the opposing lateral flaps are folded, the middle portion has a basis weight that is at least about 25% greater than the basis weight of the bottom portion.

5 35. A process as defined in claim 15, wherein, after the opposing lateral flaps are folded, the middle portion has a basis weight that is at least about 50% greater than the basis weight of the bottom portion.

36. A process as defined in claim 15, wherein, after the opposing lateral flaps are folded, the middle portion has a basis weight that is at least about 100% greater than the basis weight of the bottom portion.

10 37. An apparatus for forming an absorbent structure comprising:
a moving and porous forming surface;
a fiber conveying device for conveying fibers onto the forming surface in a gas stream; and
a pair of opposing masking members located on the forming surface,
15 the masking members blocking gas flow through the forming surface, the masking members creating a pair of opposing middle openings and a pair of opposing rear openings in an absorbent fibrous web formed on the forming surface, an absorbent fibrous web formed on the forming surface having a top portion, a middle portion, a bottom portion, and two opposing lateral flaps, the masking members being
20 positioned so as to form the middle openings between the middle portion and the lateral flaps and having shapes such that, when the lateral flaps are folded onto the absorbent web, the middle portion is narrower than the front portion and, when the lateral flaps are folded onto the absorbent web, the lateral flaps create a basis weight in the area of the middle portion that is at least about twice the basis weight
25 of areas of the rear portion.

38. An apparatus as defined in claim 37, wherein the forming surface comprises a porous fabric.

39. An apparatus as defined in claim 37, wherein the forming surface is located on a forming drum.

30 40. An apparatus as defined in claim 39, wherein a pattern of masking members is repeated over the surface of the forming drum for creating a strip of web material defining multiple absorbent pads connected together.

41. An apparatus as defined in claim 37, wherein each masking member is further configured to form a front opening located on the front portion of an absorbent fibrous web formed on the forming surface.

5 42. An apparatus as defined in claim 37, wherein each masking member is in association with a movable middle tab and a movable rear tab, wherein by placing the middle tabs in an extended position, the size of the middle portion of an absorbent fibrous web formed on the forming surface is decreased, and wherein by placing the movable rear tabs in an extended position, front openings are
10 surface.